FIGURE 1A

Amino Acid Sequences 12.12

12.12 Light chain:

leader:MALPAQLLGLLMLWVSGSSG
variable:
DIVMTQSPLSLTVTPGEPASISCRSSQSLLYSNGYNYLDWYLQKPGQSPQVLISLGSNR
ASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCMQARQTPFTFGPGTKVDIR
constant:
RTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQ
DSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC*

FIGURE 1B

12.12 Heavy chain:

leader:MEFGLSWVFLVAILRGVQC
variable:
QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYGMHWVRQAPGKGLEWVAVISYEESNRY
HADSVKGRFTISRDNSKITLYLQMNSLRTEDTAVYYCARDGGIAAPGPDYWGQGTLVTV
SS
constant:
ASTKGPSVFPLAPASKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQS
SGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELL
GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREE
QYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK*
or

alternative constant region:
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQS
SGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDRTHTCPPCPAPELL
GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREE
QYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK*

FIGURE 2A

DNA sequence of Light chain of 12.12

5'atggcgctccctgctcagctcctggggctgctaatgctctgggtctctggatccagtgggggatattgtgatgactcagtctccac
tctccctgaccgtcaccccctggagagccggcctccatctcctgcaggtccagtcagagcctcctgtatagtaatggatacaactat
ttgaattggtacctgcagaagccagggcagtctccacaggtcctgatctctttgggttctaatcgggcctccggggtccctgacag
gttcagtggcagtggatcaggcacagatttcacactgaaaatcagcagagtggaggctgaggatgttggggtttattactgcatgc
aagctcgacaaactccatcactttcggccctgggaccaaagtggatatcagacgaactgtggctgcaccatctgtcttcatcttcc
cgccatctgatgagcagttgaaatctggaactgcctctgttgtgtgcctgctgaataacttctatcccagagaggccaaagtacagt
ggaaggtggataacgccctccaatcgggtaactcccaggagagtgtcacagagcaggacagcaaggacagcacctacagcc
tcagcagcaccctgacgctgagcaaagcagactacgagaaacacaaagtctacgcctgcgaagtcacccatcaggcctgag
ctcgcccgtcacaaagagcttcaacaggggagagtgttag3'

FIGURE 2B

DNA sequence of Heavy chain of 12.12 (including introns)

5'atggagtttgggctgagctggttttccttgttgctattttaagaggtgtccagtgtcaggtgcagttggtggagtctgggggag
gcgtggtccagcctgggaggtccctgagactctcctgtgcagcctctggattcacctcagtagctatggcatgcacgggtccg
ccaggctccaggcaaggggctggagtgggtggcagttatatcatatgaggaaagtaatagataccatgcagactccgtgaagg
gccgattcaccatctccagagacaattccaagatcacgcctgtatctgcaaatgaacagcctcagaactgaggaacaggctgtgta
ttactgtgcgagagatggcgggtatagcagcacctgggcctgactactggggccagggaaccctggtcaccgtctcctcagcaa
gtaccaagggcccatcggtcttccccctggcgccgctagcaagagcacctctgggggcacagcggccctgggctgcctggt
caaggactacttccccgaaccggtgacggtgtcgtggaactcaggcgccctgaccagcggcgtgcacaccttcccggctgtcc
tacagtcctcaggactctactccctcagcagcgtggtgaccgtgccctccagcagcttgggcacccagacctacatctgcaacgt
gaatcacaagcccagcaacaccaaggtggacaagagagttggtgagaggccagcacagggagggagggtgtctgctgga
gccaggctcagcgctcctgcctggacgcatcccggctatgcagtcccagtccagggcagcaaggcaggccccgtctgcctctt
cacccggaggcctctgcccgcccactcatgctcagggagagggtcttctggttttttcccaggctctgggcaggcacaggct
aggtgcccctaacccaggcctgcacacaaaggggcaggtgctgggctcagacctgccaagagccatatccggtgggaccc
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ccaatctctctctgcagagcccaaatcttgtgacaaaactcacacatgcccaccgtgcccaggtaagccagcccaggcctcgc
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ccatctcttcctcagcacctgaactcctggggggacggtcagtcttcctcttccccccaaaaccccaaggacacctcatgatctcc
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agagcaggtggcagcaggggaacgtcttctcatgctccgtgatgcatgaggctctgcacaaccactacacgcagaagagcctc
tccctgtctccgggtaaatga3'

FIGURE 3A

Amino Acid Sequence for 5.9
5.9 Light chain:

leader:MALLAQLLGLLMLWVPGSSG
variable:
AIVMTQPPLSSPVTLGQPASISCRSSQSLVHSDGNTYLNWLQQRPGQSPRLLIYKFRR
LSGVPDRFSGSGAGTDFTLKISRVEAEDVGVYYCMQVTQFPHTFGQGTRLEIK
constant:RTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSG
NSQESVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC*

FIGURE 3B

5.9 Heavy chain:

leader:MGSTAILALLLAVLQGVCA
variable:EVQLVQSGAEVKKPGESLKISCKGSGYSFTSYWIGWVRQMPGKGLEWMGI
IYPGDSDTRYSPSFQGQVTISADKSISTAYLQWSSLKASDTAMYYCARGTAAGRDYYYY
YGMDVWGQGTTVTVSS

constant region:
ASTKGPSVFPLAPASKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQS
SGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELL
GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREE
QYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK*

or alternative constant region:

ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQS
SGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELL
GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREE
QYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPP
SREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTV
DKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

FIGURE 4A

Coding sequence for short isoform of human CD40:

```
  1 atggttcgtc tgcctctgca gtgcgtcctc tggggctgct tgctgacggc tgtccatcca
 61 gaaccaccca ctgcatgcag agaaaaacag tacctaataa acagtcagtg ctgttctttg
121 tgccagccag gacagaaact ggtgagtgac tgcacagagt tcactgaaac ggaatgcctt
181 ccttgcgggtg aaagcgaatt cctagacacc tggaacagag agacacactg ccaccagcac
241 aaatactgcg accccaacct agggcttcgg gtccagcaga agggcaccct agaaacagac
301 accatctgca cctgtgaaga aggctggcac tgtacgagtg aggcctgtga gagctgtgtc
361 ctgcaccgct catgctgcc cggctttggg gtcaagcaga ttgctacagg ggtttctgat
421 accatctgcg agccctgccc agtcggcttc ttctccaatg tgtcatctgc tttcgaaaaa
481 tgtcaccctt ggacaaggtc cccaggatcg gctgagagcc ctggtggtga tccccatcat
541 cttcgggatc ctgtttgcca tcctcttggt gctggtcttt atcaaaaagg tggccaagaa
601 gccaaccaat aa
```

FIGURE 4B

Encoded short isoform of human CD40:

```
  1 mvrlplqcvl wgcllavhp eppacrekq ylinsqccl cqpgqkvsd clftetecl
 61 pcgesefldt wnrethchqh kycdpnlglr vqqkgtsold tlclccogwh ctseacescv
121 lhrscspgfg vkqiatgvsd tlcepcpvgf fsnvssafek chpwtrspgs aespggdphh
181 lrdpvchplg aglyqkggqe anq
```

FIGURE 4C

Coding sequence for long isoform of human CD40:

```
  1 atggttgttg tgcctctgca gtgcgtcctc tggggctgct tgctgaccgc tgtccatcca
 61 gaaccaccca ctgcatgcag agaaaaacag tacctaataa acagtcagtg ctgttcttg
121 tgccagccag gacagaaaat ggtgagtgac tgcacagagt tcactgaaac ggaatgcctt
181 ccttgcggtg aaagcgaatt cctagacacc tggaacagag agacacactg ccaccagcac
241 aaatactgcg accccaacct agggcttcgg gtccagcaga agggcaccct agaaacagac
301 accatctgca cctgtgaaga aggctggcac tgtacgagtg aggcctgtga gagctgtgtc
361 ctgcaccgct catgctcgcc cggcttgggg gtcaagcaga ttgctacagg ggttatgat
421 accatctgcg agccctgccc agtcggcttc ttctccaatg tgtcatctgc tttggaaaaa
481 tgtcaccctt ggacaagctg tgagaccaaa gaactggttg tgcaacaggc aggcacaaac
541 aagactgatg ttgtctgtgg tccccaggat cggctgagag ccctggtggt gatccccatc
601 atcttcggga tcctgtttgc catcctcttg gtgctggtgt ttatcaaaaa ggtggccaag
661 aagccaacca taaaggcccc ccaccccaag caggaacccc aggagatcaa tttccccgac
721 gatcttcctg gctccaacac tgctgctcca gtgcaggaga cttacatgg atgccaaccg
781 gtcacccagg aggatggcaa agagagtgg atctcagtgc aggagagaca gtga
```

FIGURE 4D

Encoded long isoform of human CD40:

```
  1 mvrlplqcvl wgclltavhp epplacrekq ylinsqccsl cpgqkivsd cteftetecl
 61 pcgeseflat wnrethchqh kycdpnlglr vqqkgtsetd tctceegwh ctseaoesov
121 lhrscspgfg vkqiatgved tccpopvgf fsnvssafek chpwtscetk dlvvqqagtn
181 ktdvvcgpqd rlralvvipi ifgilfalll vivflkkvak kptnkaphpk qepqelnfpd
241 dlpgsntaap vqethgcqp vtqedgkesr lsvqerq
```
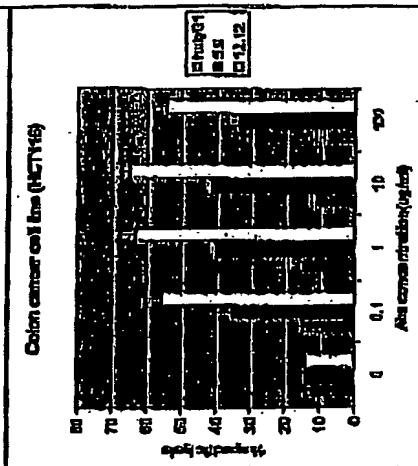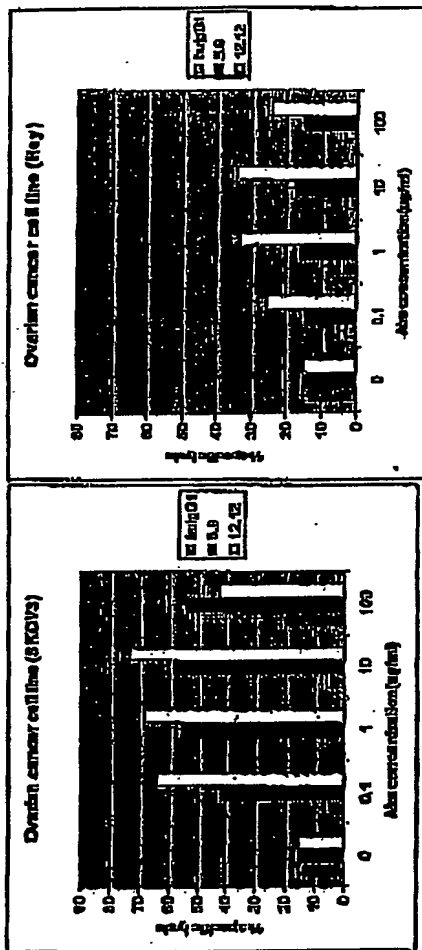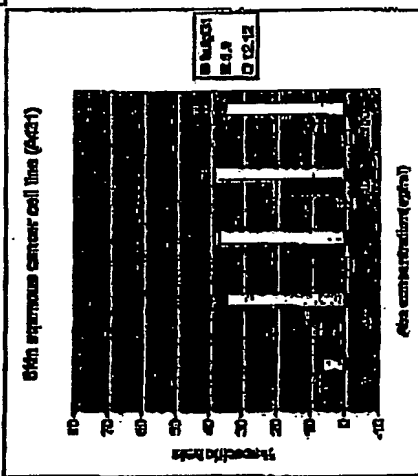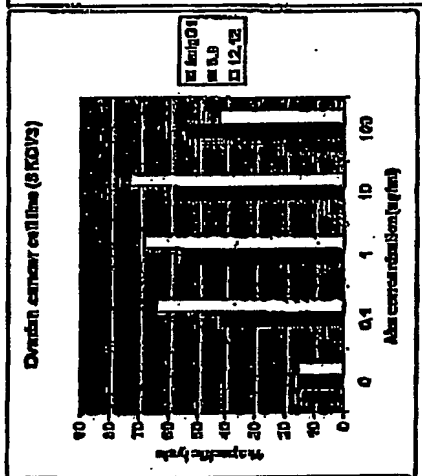
FIGURE 5B

FIGURE 5A

FIGURE 5D
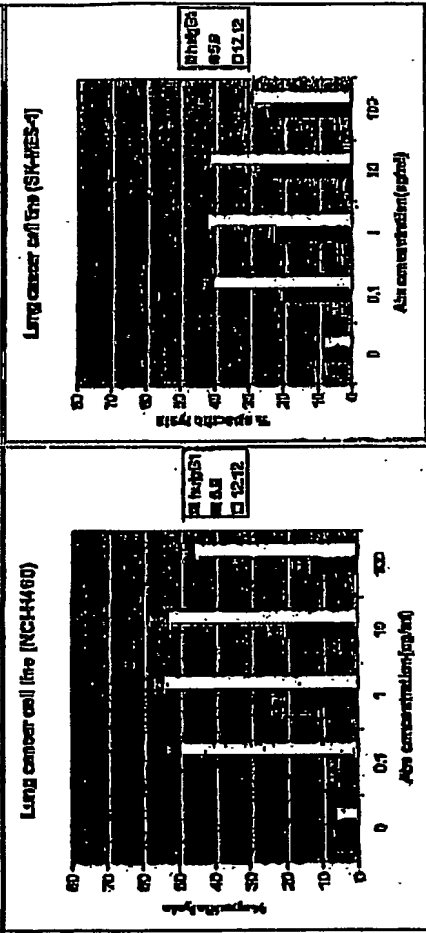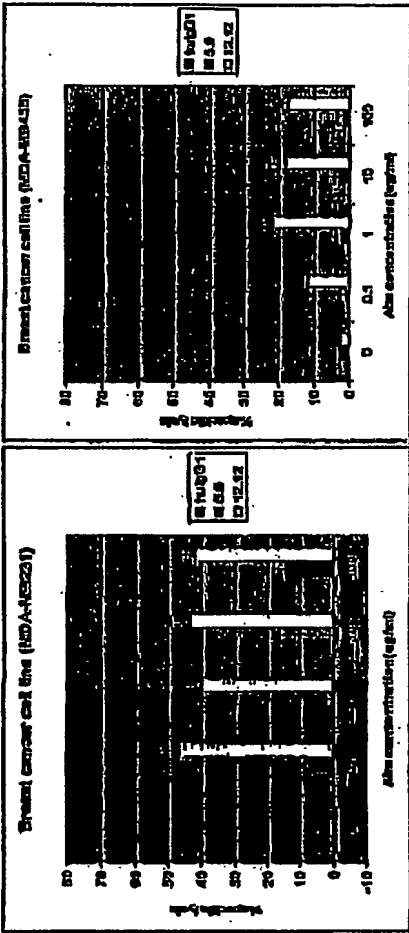
FIGURE 5C

FIGURE 6B
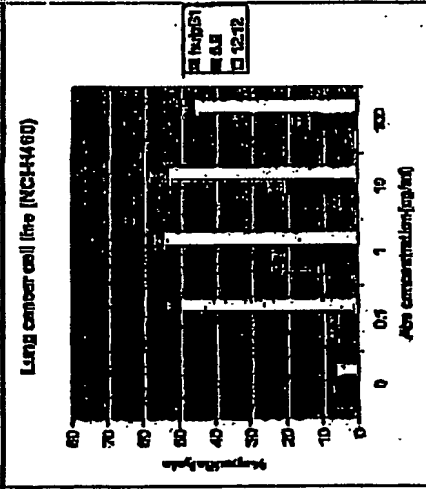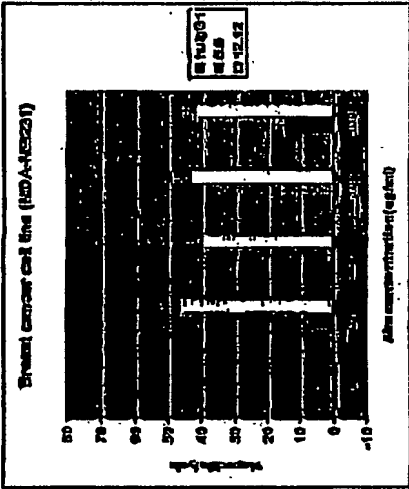
FIGURE 6A

FIGURE 6D

FIGURE 6C

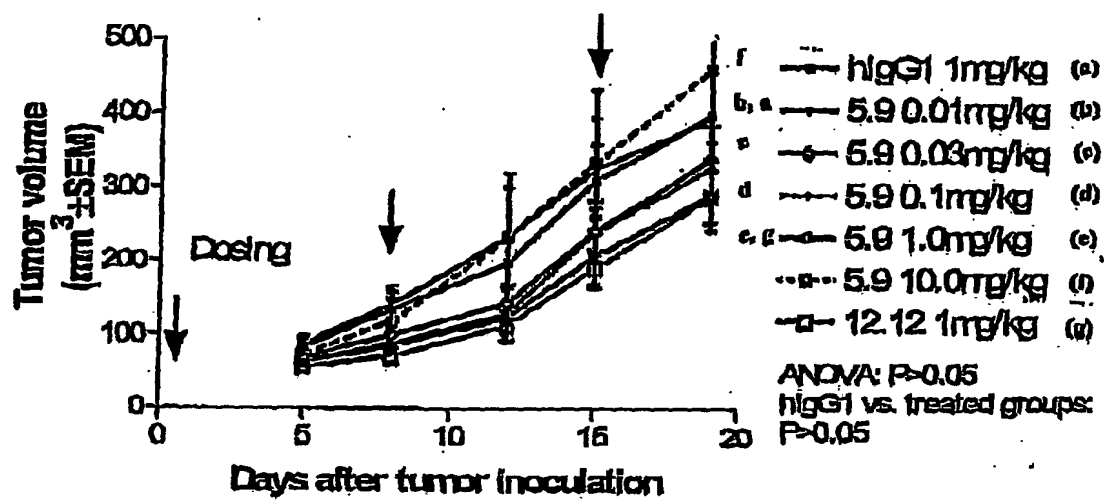# FIGURE 7
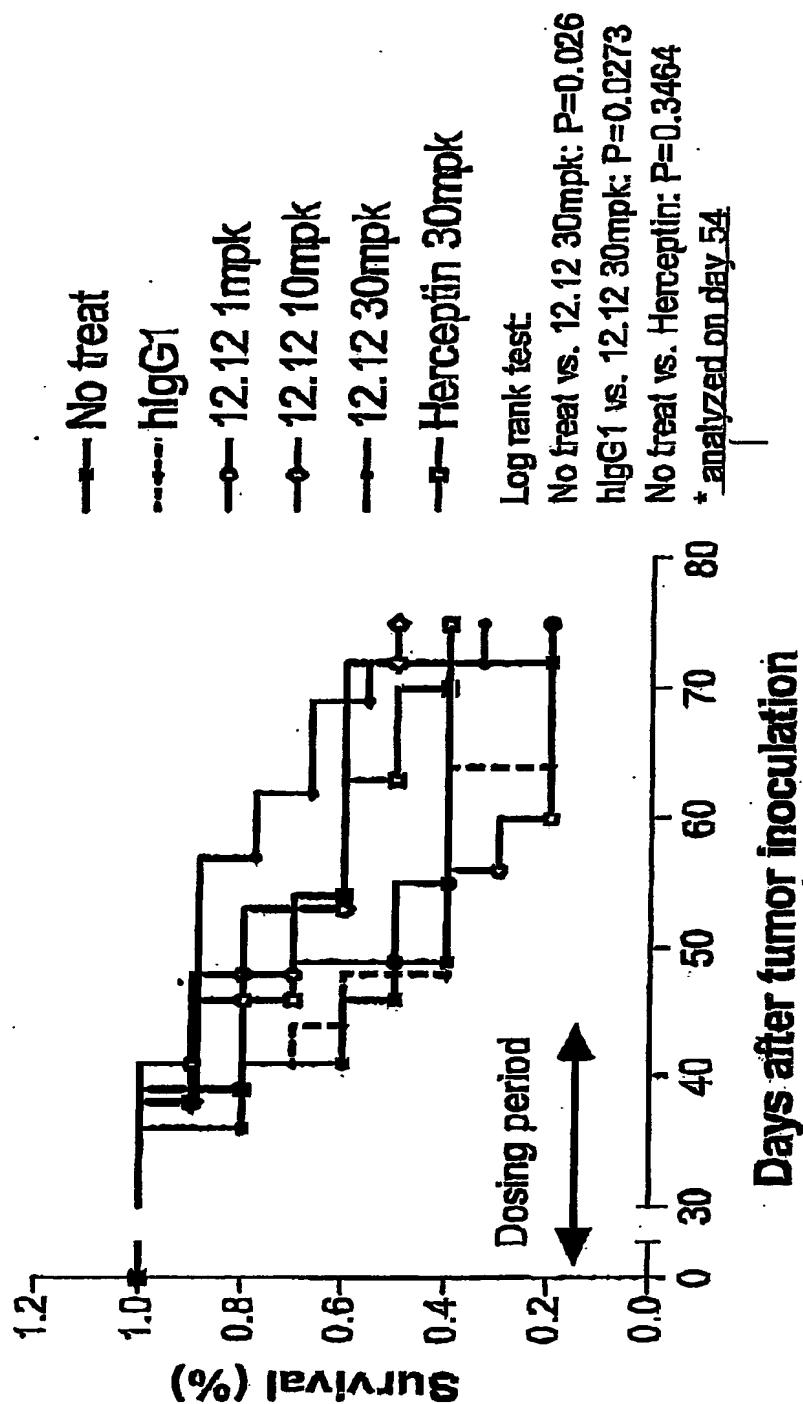
FIGURE 8

FIGURE 9
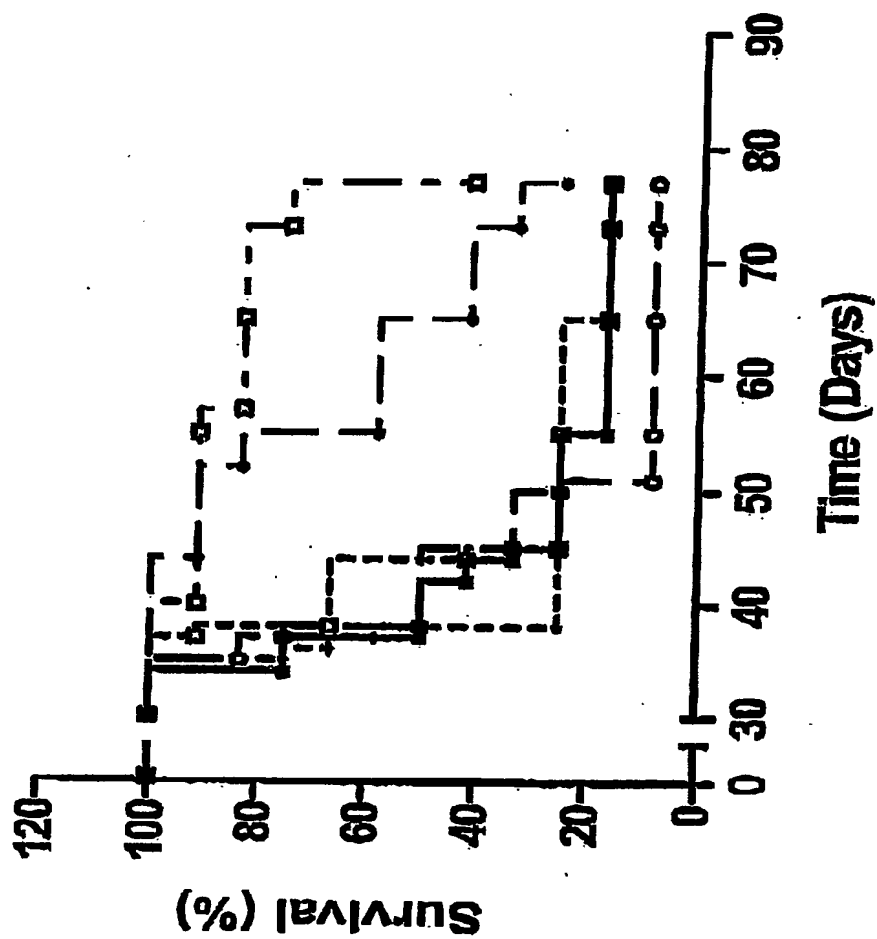

*analyzed by ANOVA on day-77

No Treatment vs IgG1: p= > 0.05

IgG1 vs 12.12 i.v. & i.p.: p= > 0.05

IgG1 vs Herceptin, i.p.: p= 0.0032

IgG1 vs Herceptin, i.v.: p= 0.0005

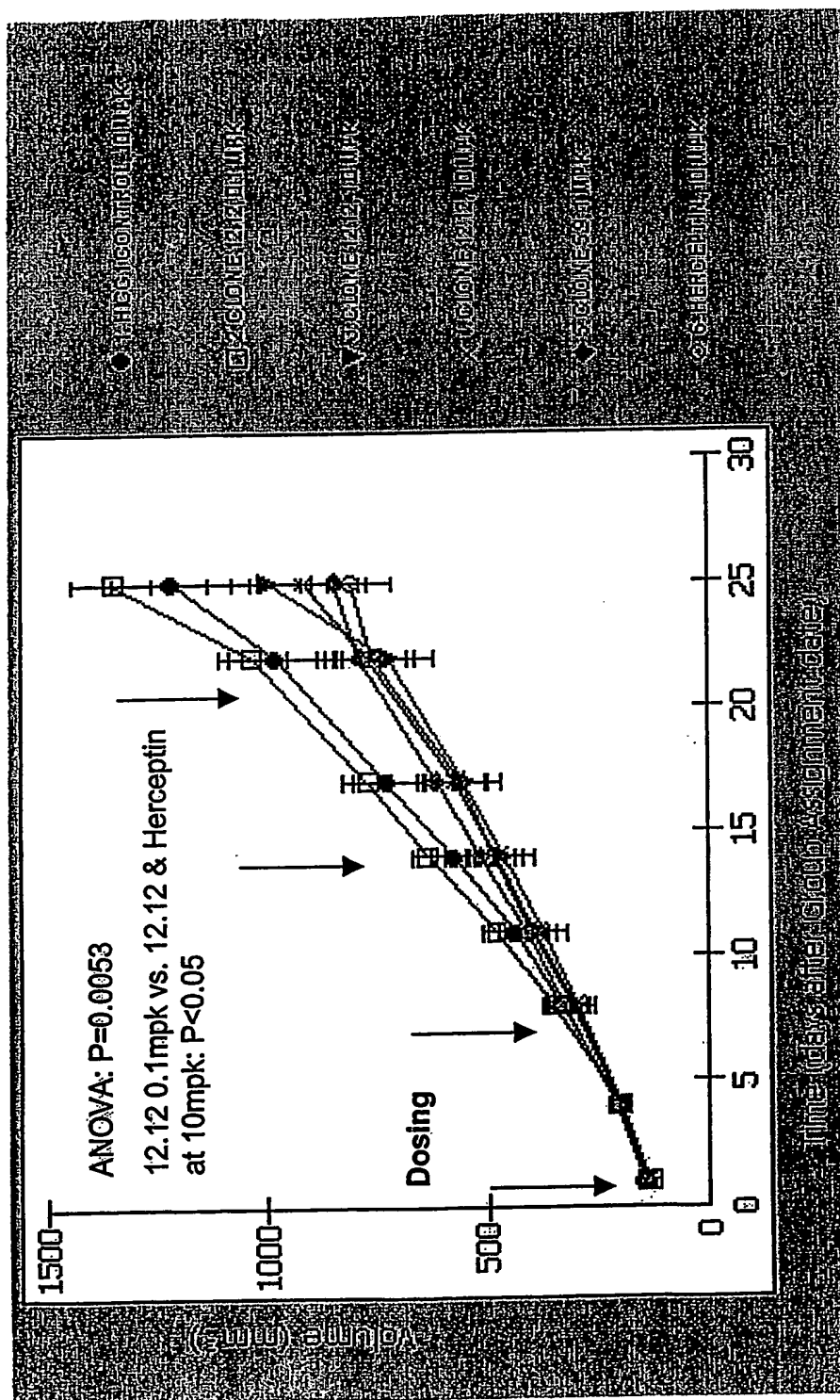—◆— No Treatment

--□-- IgG1 Control

—○— 12.12, 30 mpk, i.p.

····○···· 12.12, 30 mpk, i.v.

—■— Herceptin, i.p.

--□-- Herceptin, i.v.

dosing: days 1, 8, 15, 22

FIGURE 10

FIGURE 11